



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2018-0453; Product Identifier 2018-NM-028-AD; Amendment 39-19732; AD 2019-18-05]

RIN 2120-AA64

Airworthiness Directives; De Havilland Aircraft of Canada Limited (Type Certificate Previously Held by Bombardier, Inc.) Airplanes

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain De Havilland Aircraft of Canada Limited (Type Certificate Previously Held by Bombardier, Inc.) Model DHC-8-400 series airplanes. This AD was prompted by reports of the nose landing gear (NLG) locking in a partially extended position due to loose bushings on the lock link of the NLG locking mechanism. This AD requires repetitive inspections of the bushings and the lower lock link of the NLG for discrepancies, and corrective actions if necessary. This AD also requires replacement of the lower lock link of the NLG, which terminates the repetitive inspections. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: For service information identified in this final rule, contact De Havilland Aircraft of Canada Ltd., Q-Series Technical Help Desk, 123 Garratt Boulevard, Toronto, Ontario M3K 1Y5, Canada; telephone: 416-375-4000; fax: 416-375-4539; email: thd@dehavilland.com; Internet: <https://dehavilland.com>. You may view this service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0453.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0453; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the regulatory evaluation, any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Darren Gassetto, Aerospace Engineer, Mechanical Systems and Administrative Services Section, New York ACO Branch, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7323; fax 516-794-5531.

SUPPLEMENTARY INFORMATION:

Discussion

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain Bombardier, Inc., Model DHC-8-400 series airplanes. The NPRM published in the Federal Register on May 30, 2018 (83 FR 24694). The NPRM was prompted by reports of the NLG locking in a partially extended position due to loose bushings on the lock link of the NLG locking mechanism. The NPRM proposed to require inspecting the bushings and the lower lock link of the NLG for discrepancies, and corrective actions if necessary.

The FAA issued a supplemental notice of proposed rulemaking (SNPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain Bombardier, Inc., Model DHC-8-400 series airplanes. The SNPRM published in the Federal Register on June 7, 2019 (84 FR 26601). The FAA issued the SNPRM to add a requirement to replace the lower lock link of the NLG, which would terminate the repetitive inspections proposed in the NPRM. The SNPRM also proposed to reduce the applicability in the NPRM.

The FAA is issuing this AD to address excessive free play at the lock link of the NLG locking mechanism, and consequent inability to fully retract or deploy the NLG, which could result in collapse of the NLG and affect the safe landing of the airplane.

Transport Canada Civil Aviation (TCCA), which is the aviation authority for Canada, has issued Canadian AD CF-2018-01R1, dated January 21, 2019 (referred to after this as the Mandatory Continuing Airworthiness Information, or “the MCAI”), to correct an unsafe condition for certain De Havilland Aircraft of Canada Limited (Type

Certificate Previously Held by Bombardier, Inc.) Model DHC-8-400 series airplanes. The

MCAI states:

A landing incident took place whereby the aeroplane's nose landing gear (NLG) was locked in a partially-extended position, leading to gear collapse upon NLG touch down. The investigation revealed that the NLG was locked in this position due to the bushings on the lock link of the NLG locking mechanism becoming loose. This condition was present due to insufficient interference fit which resulted in some bushing outer diameter wear and fretting. A dislodged bushing will also cause the bushing sealant to break. Broken sealant allows moisture ingress and corrosion that can accelerate free play buildup. Excessive free play at the lock link can result in the inability to fully retract or deploy the NLG, resulting in a risk of NLG collapse on landing.

Bombardier Inc. has developed an inspection to identify and correct this condition. The original version of this [Canadian] AD required a repetitive inspection [to detect discrepancies] and corrective actions based on the inspection findings.

Revision 1 of this [Canadian] AD is issued to modify the NLG with a lower lock with improved bushing retention and greasing provisions. Implementing this modification is a terminating action to this [Canadian] AD. The modification has been introduced in production, therefore the applicability of this [Canadian] AD has been reduced. Clarifications have also been made to the retained text of the original version.

You may examine the MCAI in the AD docket on the Internet at

<http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0453.

Comments

The FAA gave the public the opportunity to participate in developing this final rule. The following presents the comments received on the SNPRM and the FAA's response to each comment.

Request to Revise Certain Requirements

Horizon Air asked that the requirement to do the actions specified in paragraph (k) of the proposed AD in accordance with paragraph 3.A. of the Accomplishment Instructions of Bombardier Service Bulletin 84-32-154, Revision A, dated November 21, 2018, be removed. Horizon Air stated that the job setup specified in paragraph 3.A. of the referenced service information does not directly correct the unsafe condition. Horizon Air would like only the actions specified in paragraph 3.B. of the referenced service information mandated.

The FAA does not agree with the commenter's request. For some ADs, the job setup actions in the associated service information do not affect the actions to correct the unsafe condition. However, for this AD, the FAA has determined that to adequately perform the corrective actions the job setup actions specified in Bombardier Service Bulletin 84-32-154, Revision A, dated November 21, 2018, must be accomplished. Paragraph 3.A., "Job Set-Up," of Bombardier Service Bulletin 84-32-154, Revision A, dated November 21, 2018, includes specific procedures for the NLG to be in the correct configuration for the corrective actions to be done and prevent damage to the equipment. Therefore, the FAA has not changed this AD in this regard.

Request to Install Post-UTC Aerospace Systems Spare Parts

Horizon Air asked that installation of NLG drag strut assemblies having part number 47300-7A, 47300-9A, or 47300-11A, serviced in accordance with UTC Aerospace Systems Vendor Service Bulletin (VSB) 47300-32-138 R3, be allowed as terminating action for the repetitive inspections. Horizon Air stated that UTC Aerospace Systems VSB 47300-32-138 R3 can be done on units not installed on the airplane.

The FAA agrees to clarify. NLG drag strut assemblies can be serviced (lower lock links replaced and affected parts re-identified) by accomplishing UTC Aerospace Systems VSB 47300-32-138 R3, as specified in Bombardier Service Bulletin 84-32-154, Revision A, dated November 21, 2018. However, operators must still show compliance with paragraph 3.A. and Steps 3.B.(1), 3.B.(4) and 3.B.(5) of the Accomplishment Instructions of Bombardier Service Bulletin 84-32-154, Revision A, dated November 21, 2018, for the removal of a unit which has not been serviced, and installation of a serviced spare unit, in order to correct the unsafe condition. In addition, paragraph (f) of this AD specifies “Comply with this AD within the compliance times specified, unless already done.” Therefore, if some of the corrective actions have been done, only the remaining corrective actions must be completed to comply with this AD. The FAA has not changed this AD in this regard.

Explanation of Change Made to this Final Rule

The FAA has revised this final rule to identify the legal name of the manufacturer as published in the most recent type certificate data sheet for the affected airplane models.

Conclusion

The FAA reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this final rule as proposed, except for minor editorial changes. The FAA has determined that these minor changes:

- Are consistent with the intent that was proposed in the SNPRM for addressing the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the SNPRM.

Related Service Information under 1 CFR part 51

Bombardier has issued the following service information:

- Service Bulletin 84-32-153, Revision A, dated February 27, 2018, which describes procedures for general visual inspections of the bushings and the lower lock link of the NLG for discrepancies. The service information also describes procedures for repair or replacement of the lock link if any discrepancy is found.
- Service Bulletin 84-32-154, Revision A, dated November 21, 2018, which describes procedures for replacement of the existing lock link with a new lock link.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

Costs of Compliance

The FAA estimates that this AD affects 64 airplanes of U.S. registry.

The FAA estimates the following costs to comply with this AD:

Estimated costs for required actions

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Inspection	2 work-hours X \$85 per hour = \$170 per inspection cycle	\$0	\$170 per inspection cycle	\$10,880 per inspection cycle
Replacement	6 work-hours X \$85 per hour = \$510	\$5,923	\$6,433	\$411,712

The FAA has received no definitive data that enables the agency to provide cost estimates for the on-condition actions specified in this AD.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance

and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to transport category airplanes and associated appliances to the Director of the System Oversight Division.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

- 2. The FAA amends § 39.13 by adding the following new airworthiness directive

(AD):

2019-18-05 De Havilland Aircraft of Canada Limited (Type Certificate Previously Held by Bombardier, Inc.): Amendment 39-19732; Docket No. FAA-2018-0453; Product Identifier 2018-NM-028-AD.

(a) Effective Date

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to De Havilland Aircraft of Canada Limited (Type Certificate Previously Held by Bombardier, Inc.) Model DHC-8-400, -401, and -402 airplanes, certificated in any category, serial numbers 4001 through 4585 inclusive, and 4587.

(d) Subject

Air Transport Association (ATA) of America Code 32, Landing gear.

(e) Reason

This AD was prompted by reports of the nose landing gear (NLG) locking in a partially extended position due to loose bushings on a lock link of the NLG locking mechanism. The FAA is issuing this AD to address excessive free play at the lock link of the NLG locking mechanism, and consequent inability to fully retract or deploy the NLG, which could result in collapse of the NLG and affect the safe landing of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Repetitive Inspections and Corrective Actions

Except as provided by paragraphs (h) and (i) of this AD: Do a general visual inspection for the NLG lower lock link part number and discrepancies of the bushings and of the lower lock link of the NLG locking mechanism, at the applicable time specified in paragraph (g)(1) or (2) of this AD, in accordance with paragraphs 3.A. and 3.B., or 3.A. and 3.D., as applicable, of the Accomplishment Instructions of Bombardier Service Bulletin 84-32-153, Revision A, dated February 27, 2018. If any discrepancy is found, before further flight, repair or replace the NLG lower lock link, as applicable, in accordance with paragraphs 3.B. or 3.D, as applicable, of Bombardier Service Bulletin 84-32-153, Revision A, dated February 27, 2018. Repeat the inspection thereafter at intervals not to exceed 1,600 flight cycles on any NLG lower lock link.

(1) For airplanes on which an NLG lower lock link has accumulated 7,200 or fewer total flight cycles as of the effective date of this AD: Before the accumulation of 8,000 total flight cycles on the NLG lower lock link.

(2) For airplanes on which an NLG lower lock link has accumulated more than 7,200 total flight cycles as of the effective date of this AD: Within 800 flight cycles on the NLG lower lock link after the effective date of this AD.

(h) Inspections After Repair or Replacement of NLG Lower Lock Link

For airplanes with an NLG lower lock link that is repaired or replaced as specified in any one of paragraphs (h)(1) through (4) of this AD: The next inspection specified by paragraph (g) of this AD is required for the NLG lower lock link on the airplane at the applicable time specified in figure 1 to the introductory text of paragraph (h) of this AD.

Figure 1 to the introductory text of paragraph (h) – *Compliance times for next inspection on repaired or replaced NLG lower lock link*

Flight Cycles	Compliance Time
Airplanes on which the NLG lower lock link has accumulated 7,200 or fewer flight cycles since the NLG lower link was repaired or replaced	Before the accumulation of 8,000 flight cycles on the NLG lower lock link since the repair or replacement
Airplanes on which the NLG lower lock link has accumulated more than 7,200 flight cycles since the NLG lower link was repaired or replaced	Within 800 flight cycles on the NLG lower lock link after the effective date of this AD

(1) Repaired as specified in Bombardier Repair Drawing 8/4-32-0338;

(2) Repaired as specified in the Goodrich Aerospace Canada Ltd. Component Maintenance Manual, Part Number (P/N) 47300, 32-21-03;

(3) Replaced with a serviceable lock link having P/N 47324-1 (SCR-093-17-B);

or

(4) Replaced with a new lock link having P/N 47324-1.

(i) Lock Link Excepted from Inspection Requirements

The inspections specified in this AD are not required for any new NLG lower lock link having P/N 47324-3.

(j) Credit for Previous Actions

This paragraph provides credit for actions required by paragraph (g) of this AD, if those actions were performed before the effective date of this AD using Bombardier Service Bulletin 84-32-153, dated September 22, 2017, provided all drag strut joints were greased, as specified in paragraphs 3.B.(1)(h) and 3.D.(1)(c)5 of the Accomplishment Instructions of this service information, using aircraft maintenance manual (AMM) Task 12-20-01-640-802.

(k) Terminating Action for Repetitive Inspections

Within 8,000 flight cycles or 48 months on the NLG lower lock link after the effective date of this AD, whichever occurs first: Replace the existing NLG lower lock link with a new lower lock link having P/N 47324-3, in accordance with paragraphs 3.A. and 3.B. of the Accomplishment Instructions of Bombardier Service Bulletin 84-32-154, Revision A, dated November 21, 2018. Replacement of the lower lock link on the NLG terminates the repetitive inspections required by paragraphs (g) and (h) of this AD for that airplane.

(l) Other FAA AD Provisions

The following provisions also apply to this AD:

(1) *Alternative Methods of Compliance (AMOCs)*: The Manager, New York ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the New York ACO Branch, send it to ATTN: Program Manager, Continuing Operational Safety, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7300; fax 516-794-5531. Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(2) *Contacting the Manufacturer*: For any requirement in this AD to obtain corrective actions from a manufacturer, the action must be accomplished using a method approved by the Manager, New York ACO Branch, FAA; or Transport Canada Civil

Aviation (TCCA); or Bombardier, Inc.'s TCCA Design Approval Organization (DAO). If approved by the DAO, the approval must include the DAO-authorized signature.

(m) Related Information

(1) Refer to Mandatory Continuing Airworthiness Information (MCAI) Canadian AD CF-2018-01R1, dated January 21, 2019, for related information. This MCAI may be found in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0453.

(2) For more information about this AD, contact Darren Gassetto, Aerospace Engineer, Mechanical Systems and Administrative Services Section, New York ACO Branch, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7323; fax 516-794-5531.

(3) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (n)(3) and (4) of this AD.

(n) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless this AD specifies otherwise.

(i) Bombardier Service Bulletin 84-32-153, Revision A, dated February 27, 2018.

(ii) Bombardier Service Bulletin 84-32-154, Revision A, dated November 21, 2018.

(3) For service information identified in this AD, contact De Havilland Aircraft of Canada Ltd., Q-Series Technical Help Desk, 123 Garratt Boulevard, Toronto, Ontario M3K 1Y5, Canada; telephone: 416-375-4000; fax: 416-375-4539; email: thd@dehavilland.com; Internet: <https://devahilland.com>.

(4) You may view this service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email fedreg.legal@nara.gov, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Des Moines, Washington, on September 9, 2019.

Michael Kaszycki,
Acting Director,
System Oversight Division,
Aircraft Certification Service.

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